

REMARKS

In the Office Action mailed March 21, 2006, all claims are rejected and an objection is raised with respect to claim 7. The applicants respectfully request reconsideration in light of the amendments and remarks presented in this reply.

I. Interview summary

The applicants acknowledge with appreciation the Examiner's agreement, during a telephonic interview, to enter this after final amendment.

II. Response to claim objection

An objection is raised as to spelling of the term "storing" in claim 7. Claim 7 has been amended to address this objection.

III. Response to § 102 and §103 rejections

Claims 1-8, 10, and 11 stand rejected under 35 U.S.C. § 102(a) as anticipated by U.S. Patent No. 6,421,711 ("Blumenau"). Additionally, claims 9 and 12 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Blumenau in view of U.S. Patent No. 6,128,623 ("Mattis"). These rejections are respectfully traversed.

Claim 1 recites a virtualizer that includes (within the virtualizer) a cache subsystem and that sends commands to a RAID controller separate from the virtualizer. This feature of claim 1 provides various benefits over prior art systems such as reducing command latency and increasing command throughput.

The cited prior art does not teach or suggest this feature. Blumenau relates to a data storage system. Specifically, Blumenau teaches a storage controller (27) having various functions. Storage controller 27 is a single unit having a port adapter, a storage adapter, and a cache memory. Both the port adapter and the storage adapter share cache memory 32. None of these units are "separate". To the extent Blumenau discloses

a "virtualizer," it does not disclose a cache system "within" the virtualizer and a "separate" RAID controller.

Furthermore, Blumenau teaches away from separating a RAID controller from a virtualizer containing a cache. Lines 44-50 of column 7 of Blumenau explain "cache resources are consolidated into one large cache, which is more efficient than a number of smaller caches having in total the same cache memory capacity". This excerpt shows that the system of Blumenau requires unifying the port adapter with the storage adapter so that they can access the same cache memory. Separating any of these components would render Blumenau unsatisfactory for its intended purpose. Thus, not only does Blumenau not teach a virtualizer containing a cache subsystem sending commands to a separate RAID controller, but Blumenau expressly teaches away from this feature.

Mattis pertains to a cache for information objects. Nowhere does Mattis teach or suggest any feature comparable to this feature of claim 1.

Claims 6-8, 10, and 11 are patentable at least because each one of these claims comprises a feature comparable to the feature of claim 1 discussed above. Claims 2-5, 9, and 12 are allowable at least because each one of these claims depends from an allowable claim.

IV. Response to § 112 rejections

Claims 7-9, 11, and 12 stand rejected under 35 U.S.C. § 112, first paragraph. This rejection is respectfully traversed.

The Examiner asserts that the specification does not enable "determination and control within an environment composed of a plurality of virtualizers . . ." The applicants respectfully disagree with this assertion. Figures 2-4 and their corresponding textual descriptions describe various architectures that comprise a plurality of virtualizers. Figures 2-4 and their corresponding textual descriptions

contain sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use a virtualizer architecture composed of a plurality of virtualizers. If the Examiner continues to believe that the disclosure does not enable these claims, the applicants respectfully request the Examiner to explain the rejection in greater detail. Specifically, the applicants request the Examiner to cite the text describing the features the examiner feels are not enabled.

V. New claims 13-15

Claim 13 has been added. Claim 13 defines a virtualizer that comprises a cache subsystem and that sends commands to a RAID controller that includes a cache subsystem separate from the cache subsystem of the virtualizer. The cited prior art does not teach or suggest this feature. Each of the various embodiments described in Blumenau include only a single cache. For example, figure 1 shows a storage subsystem having a single cache (32). As the various embodiments in Blumenau include only one cache, Blumenau does not disclose a virtualizer with a cache subsystem that sends commands to a RAID controller having its own cache.

Furthermore, as explained above, the system of Blumenau requires a single cache accessed by multiple components (col. 7, ll. 44-50). Thus, Blumenau expressly teaches away from this feature of claim 13.

Mattis pertains to a cache for information objects. Nowhere does Mattis teach or suggest any feature comparable to the multiple cache system of claim 13.

Claims 14 and 15 have also been added. Each of these claims is allowable over the cited prior art at least because each claim depends from an allowable base claim.

VI. Conclusion

In view of the above amendment, the applicant believes the pending application is in condition for allowance. If there are any formal matters remaining after this reply, the applicant respectfully requests the examiner to telephone the

undersigned. If there are any additional fees associated with the filing of this reply,
please charge them to deposit account no. 04-1073.

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Respectfully submitted,

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